

REMARKS

Claims 7, 10, 13 and 17 are pending in the above-identified application. Claims 1-6, 8-9 and 14-16 were previously cancelled and remain cancelled.

In the Office Action of July 24, 2008, claims 7, 10, 13 and 17 were rejected.

In this Amendment, claims 7 and 17 are amended. Accordingly, claims 7, 10, 13, and 17 remain at issue.

35 U.S.C. § 103 Obviousness Rejection of Claims

Claims 7, 10, 12, 13, and 17 under 35 U.S.C. § 103(a) as being unpatentable over *Narang, et al.* (U.S. Patent 6,168,885) in view of *Schneider, et al.* (U.S. Patent 6,180,281) in view of *Gozdz, et al.* (U.S. Patent 5,840,087) in view of *Kumeuchi, et al.* (U.S. Patent 6,156,080) in view of *Takamiya, et al.* (U.S. Patent 6,150,455). Applicant respectfully traverses this rejection.

Independent claims 7 and 17, each as amended, recite gel-electrolyte layers comprising an electrolyte salt, a nonaqueous solvent where the matrix polymer is any one of polytetrafluoroethylene, polyhexafluoropropylene, polyethylene oxide, polypropylene oxide, polyphosphagen, polyvinyl alcohol, styrene-butadiene rubber, nitrile-butadiene rubber, polystyrene or polycarbonate.

This clearly unlike *Narang*, which fails to disclose or even suggest gel-electrolyte layers comprising an electrolyte salt, a nonaqueous solvent where the matrix polymer is any one of polytetrafluoroethylene, polyhexafluoropropylene, polyethylene oxide, polypropylene oxide, polyphosphagen, polyvinyl alcohol, styrene-butadiene rubber, nitrile-butadiene rubber, polystyrene or polycarbonate. Instead, *Narang* discloses a gel based or plasticized polymer electrolyte system where the plasticized polymers include low molecular weight polymers such

as polycarbonates, polyacrylates, polysiloxanes, gamma-butyrolactone, triglyme, tetraglyme, dimethylsulfoxide, dioxolane, and sulfolane. See, U.S. Pat. No. 6,168,885, Col. 2, l. 40-60. Since *Narang* discloses plasticized polymers made of low molecular weight polymers, it does not disclose or even suggest the high molecular weight polymers as required by the claims.

Schneider, similarly, fails to disclose or even suggest gel-electrolyte layers comprising an electrolyte salt, a nonaqueous solvent where the matrix polymer is any one of polytetrafluoroethylene, polyhexafluoropropylene, polyethylene oxide, polypropylene oxide, polyphosphagen, polyvinyl alcohol, styrene-butadiene rubber, nitrile-butadiene rubber, polystyrene or polycarbonate. Instead, *Schneider* discloses a separator made of a polymer matrix which may be composed of olefin, polyvinyl, alcohol, polyvinylidene fluoride and associated copolymers. See, U.S. Pat. No. 6,180,281, Col. 5, l. 19-25. Since *Schneider* discloses a separator made of a polymer matrix made of olefin, polyvinyl, alcohol, polyvinylidene fluoride and associated copolymers, it fails to disclose or even suggest a required element of the claim.

Gozdz, similarly, fails to disclose or even suggest gel-electrolyte layers comprising an electrolyte salt, a nonaqueous solvent where the matrix polymer is any one of polytetrafluoroethylene, polyhexafluoropropylene, polyethylene oxide, polypropylene oxide, polyphosphagen, polyvinyl alcohol, styrene-butadiene rubber, nitrile-butadiene rubber, polystyrene or polycarbonate. Instead, *Gozdz* discloses a separator/electrolyte made of a polymeric matrix which is preferably a polyvinylidene fluoride copolymer. See, U.S. Pat. No. 5,840,087, Col. 3, l. 1-7. Since *Gozdz*, discloses a polymer matrix made of a polyvinylidene fluoride copolymer, it fails to disclose or even suggest a required element of the claim.

Kumeuchi, similarly, fails to disclose or even suggest gel-electrolyte layers comprising an electrolyte salt, a nonaqueous solvent where the matrix polymer is any one of

polytetrafluoroethylene, polyhexafluoropropylene, polyethylene oxide, polypropylene oxide, polyphosphagen, polyvinyl alcohol, styrene-butadiene rubber, nitrile-butadiene rubber, polystyrene or polycarbonate. Instead, *Kumeuchi* discloses thermally sealing a electrode sheet in a soft bag made of a thermoplastic polymer such as polyethylene, polypropylene, nylon, or a combination thereof. See, U.S. Pat. No. 6,156, 080, Col 3. l. 45-49. Since *Kumeuchi* discloses a plastic bag covering an electrolyte made from a thermo plastic polymer, it fails to disclose or even suggest a required element of the claim.

Takamiya, similarly, fails to disclose or even suggest gel-electrolyte layers comprising an electrolyte salt, a nonaqueous solvent where the matrix polymer is any one of polytetrafluoroethylene, polyhexafluoropropylene, polyethylene oxide, polypropylene oxide, polyphosphagen, polyvinyl alcohol, styrene-butadiene rubber, nitrile-butadiene rubber, polystyrene or polycarbonate. Instead, *Takamiya* discloses an electrolyte gel made of an acrylonitrile copolymer, a polyalkylene oxide and an electrolytic solution containing an electrolyte dissolved in an organic solvent. See, U.S. Pat. No. 6,150,455, Col. 3, l. 10-22. Since *Takamiya* discloses a gel made from an acrylonitrile copolymer, a polyalkylene oxide, it fails to disclose or even suggest a required element of the claim.

As Applicant's specification discloses, by providing gel-electrolyte layers comprising an electrolyte salt, a nonaqueous solvent where the matrix polymer is any one of polytetrafluoroethylene, polyhexafluoropropylene, polyethylene oxide, polypropylene oxide, polyphosphagen, polyvinyl alcohol, styrene-butadiene rubber, nitrile-butadiene rubber, polystyrene or polycarbonate, the energy density of the battery is raised and the heavy-load resistance is improved. See, Specification, Page 11. Since *Narang*, *Schneide*, *Gozdz*, *Kumeuchi* and *Takamiya* do not disclose this feature, they cannot provide the same benefit.

Therefore, because *Narang*, *Schneide*, *Gozdz*, *Kumeuchi*, *Takamiya* and any combination of them fails to disclose or even suggest every feature of claims 7 and 17, the rejection of claims 7 and 17 cannot stand. Because claims 10, 12 and 13 depend either directly or indirectly from claim 7, they are allowable for at least the same reasons.

Conclusion

In view of the above amendments and remarks, Applicant submits that all claims are clearly allowable over the cited prior art, and respectfully requests early and favorable notification to that effect.

Respectfully submitted,

Dated: October 23, 2008

By: /David R. Metzger/
David R. Metzger
Registration No. 32,919
SONNENSCHN NATH & ROSENTHAL LLP
P.O. Box 061080
Wacker Drive Station, Sears Tower
Chicago, Illinois 60606-1080
(312) 876-8000